

**Notice of Allowability****Application No.**

10/598,725

**Applicant(s)**

ARIMA ET AL.

**Examiner**

SEAN P. GRAMLING

**Art Unit**

2875

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to telephone interviews held on January 7, 2010 and January 12, 2010.
2. ☒ The allowed claim(s) is/are 14 and 16-31.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some\* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date \_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_.



**DETAILED ACTION**  
**EXAMINER'S AMENDMENT**

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Ms. Suzanne Konrad (reg. #60517) on January 12, 2010.

The application has been amended as follows:

**In the Claims:**

**Amend** claims 14, 16-17 and 25-26 according to the following:

**Claim 14**

Line 7, **delete** "+..."

Line 9, **delete** ",..."

Line 11, **delete** ",..."

Line 12, **delete** "..."

**Claim 16**

Line 2, **delete** ",..."

Line 7, **delete** "..."

**Claim 17**

Line 2, **delete** ",..."

Line 7, **delete** "..."

Claim 25

Line 10, **delete** "+..."

Line 12, **delete** ",..."

Line 14, **delete** ",..."

Line 15, **delete** "..."

Claim 26

Line 12, **delete** "+..."

Line 14, **delete** ",..."

Line 16, **delete** ",..."

Line 17, **delete** "..."

***Allowable Subject Matter***

2. **Claims 14 and 16-31** are allowed.
3. The following is an examiner's statement of reasons for allowance:
4. Regarding claim 14, the prior art of record neither anticipates nor renders obvious the collective limitations of the claim, including an optical sheet comprising a plurality of lens elements provided successively in a row on one of principal faces of said optical sheet, wherein if a Z axis is taken in parallel to a normal line direction to said optical sheet and an X axis is taken in a direction of the row of said lens elements, a cross sectional shape in the XZ plane of each of said lens elements has a hyperboloidal or paraboloidal structure in which an entire surface of each of said lens

elements satisfies the following expression:  $Z = X^2 / (R + \sqrt{(R^2 - (1+K)X^2)}) + AX^4 + BX^5 + CX^6$

where R is the radius of curvature of a distal end vertex, K is a conic constant, and A,B,C are aspheric coefficients, and wherein the radius R of curvature, the conic constant K and the aspheric coefficients A,B,C satisfy the following numerical ranges:  $R \geq 0$ ,  $K \leq -1$ ,  $0 < A < 10^{-3}$ , and  $0 \leq B, C < 10^{-3}$ . Claims 16-24 and 27-31 are allowable in that they are dependent on and further limit claim 14.

5. Regarding claim 25, the prior art of record neither anticipates nor renders obvious the collective limitations of the claim, including a backlight comprising a light source for emitting illumination light; and an optical sheet for raising the directivity of the illumination light emitted from said light source, said optical sheet comprising, on the illumination light emission side thereof, a plurality of lens elements provided successively in a row, wherein if a Z axis is taken in parallel to a normal line direction to said optical sheet and an X axis is taken in a direction of the row of said lens elements, a cross sectional shape in the XZ plane of each of said lens elements has a hyperboloidal or paraboloidal structure in which an entire surface of each of said lens elements satisfies the following expression:  $Z = X^2 / (R + \sqrt{(R^2 - (1+K)X^2)}) + AX^4 + BX^5 + CX^6$  where R is the radius of curvature of a distal end vertex, K is a conic constant, and A,B,C are aspheric coefficients, and wherein the radius R of curvature, the conic constant K and the aspheric coefficients A,B,C satisfy the following numerical ranges:  $R \geq 0$ ,  $K \leq -1$ ,  $0 < A < 10^{-3}$ , and  $0 \leq B, C < 10^{-3}$ .

6. Regarding claim 26, the prior art of record neither anticipates nor renders obvious the collective limitations of the claim, including a liquid crystal display apparatus

comprising a light source for emitting illumination light; an optical sheet for raising the directivity of the illumination light emitted from said light source, said optical sheet comprising, on the illumination light emission side thereof, a plurality of lens elements provided successively in a row; and a liquid crystal display panel for displaying an image based on the illumination light emitted from said optical sheet, wherein if a Z axis is taken in parallel to a normal line direction to said optical sheet and an X axis is taken in a direction of the row of said lens elements, a cross sectional shape in the XZ plane of each of said lens elements has a hyperboloidal or paraboloidal structure in which an entire surface of each of said lens elements satisfies the following expression:  $Z = X^2 / (R + \sqrt{R^2 - (1 + K)X^2}) + AX^4 + BX^5 + CX^6$  where R is the radius of curvature of a distal end vertex, K is a conic constant, and A,B,C are aspheric coefficients, and wherein the radius R of curvature, the conic constant K and the aspheric coefficients A,B,C satisfy the following numerical ranges:  $R \geq 0$ ,  $K \leq -1$ ,  $0 < A < 10^{-3}$ , and  $0 \leq B, C < 10^{-3}$ .

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Response to Arguments***

7. Applicant's arguments filed September 18, 2009 with respect to the rejections in the previous Office Action have been fully considered and are persuasive. Therefore the rejections have been withdrawn.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SEAN P. GRAMLING whose telephone number is (571)272-9082. The examiner can normally be reached on MONDAY-FRIDAY 7:30 AM-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra O'Shea can be reached on (571) 272-2378. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Sean P Gramling  
Examiner  
Art Unit 2875

/SPG/  
/Sharon E. Payne/  
Primary Examiner, Art Unit 2875

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